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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Adrianus Jacobus Wittebrood

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EXAMINER

ZIMMERMAN, JOHN J

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/552,741	<b>Applicant(s)</b> WITTEBROOD ET AL.	
	<b>Examiner</b> John J. Zimmerman	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-17 and 19-28 is/are rejected.
- 7) ☒ Claim(s) 10, 11 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/12/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>20051012</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **FIRST OFFICE ACTION**

### ***Amendments***

1. This First Office Action considers the claims and specification as amended in the "PRELIMINARY AMENDMENT" received October 12, 2005. Claims 1-28 are pending in this application.

### ***Priority***

2. Receipt is acknowledged of a copies of certified copies of priority documents from the International Bureau submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 102/103***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1794

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 7, 12-13, 15, 18, 20 and 27 are rejected under 35 U.S.C. 102(b or e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Baumeister (U.S. Patent 6,676,896) or Baumeister (DE 10024004 A1).

6. Baumeister '896 discloses production of foamable metal preforms wherein aluminum metal skin plates contain cores of foamable aluminum including foil inserts and the laminate is roll bonded (e.g. see Figure 3; column 2, lines 13-35; claims 1-10). Although the interior foil of Baumeister may be a release foil, the ability of being foamable would be inherent to the foamable mixture and the foil. Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products

Art Unit: 1794

where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977). Baumeister '004 is the German counterpart of Baumeister '896 and discloses the same subject matter.

7. Claims 1-3, 7, 12-13, 15, 17-22 and 27-28 are rejected under 35 U.S.C. 103(a) as obvious over Baumeister (U.S. Patent 6,676,896) or Baumeister (DE 10024004 A1).

8. Baumeister '896 discloses production of foamable metal preforms wherein aluminum metal skin plates contain cores of foamable aluminum including foil inserts and the laminate is roll bonded (e.g. see Figure 3; column 2, lines 13-35; claims 1-10). Although the interior foil of Baumeister may be a release foil, the ability of being foamable would be inherent to the foamable mixture and the foil. Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton,*

Art Unit: 1794

*and Shaw*, 195 USPQ 431 (CCPA 1977). Regarding claim 17, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the rolling operation at a temperature sufficient to roll bond the layers but low enough to prevent premature foaming. Regarding claim 28, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a reduction percentage sufficient to bond the layers. Regarding claim 19, the use of coiling to store and transport a length of sheet material would have been obvious to one of ordinary skill in the art in order to facilitate the storage and transport operation. Regarding claims 21-22, Baumeister '896 clearly shows that any number of layers can be used (e.g. see Figure 3). Baumeister '004 is the German counterpart of Baumeister '896 and discloses the same subject matter.

9. Claims 1-3, 8, 12 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Schneider (DE 19848632).

10. Schneider discloses production of preforms for in-situ metal foam formation in the cavities of articles such as metal columns and beams (e.g. see Schneider's claim 1). The carrier sheet is aluminum, zinc or aluminum-zinc alloy (e.g. see Schneider's claim 10) and has disposed on its surface a foaming agent such as 0.5-3 wt.% titanium hydride or zirconium hydride (e.g. see Schneider's claim 12). The carrier sheet with the coating of foaming agent can be rolled up (e.g. see Schneider's claim 16; Figure 1) and therefore would result in layers stacked over each other and would result in metal skin sheets (plates) on either side of the interior sheets of the roll.

Art Unit: 1794

11. Claims 1-9, 12-14 and 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider (DE 19848632) in view of Toyoda (U.S. Patent 5,316,997) or Usui (U.S. Patent 5,173,471), and further in view of Ament (U.S. 2003/0115730) and Wells (U.S. Patent 3,788,823).

12. Schneider discloses production of preforms for in-situ metal foam formation in the cavities of articles such as metal columns and beams (e.g. see Schneider's claim 1). The carrier sheet is aluminum, zinc or aluminum-zinc alloy (e.g. see Schneider's claim 10) and has disposed on its surface a foaming agent such as 0.5-3 wt.% titanium hydride or zirconium hydride (e.g. see Schneider's claim 12). Placement of the preform into the cavities of the metal columns and beams would qualify as having the preform in between metal skin plates. The carrier sheet with the coating of foaming agent can be rolled up (e.g. see Schneider's claim 16; Figure 1) to form a three dimensional preform for placement into cavities intended to be filled with the foamed metal composite. Regarding pending claims that require stacks of foamable sheets (e.g. claim 2) in the form of a three dimensional preform for foaming, one of ordinary skill in the art at the time the invention was made would have found it obvious to alternatively form the three dimensional preform of Schneider as three dimensional stacked sheets instead of a rolled sheet since both stacking or rolling metal sheets to form three dimensional objects are conventional alternative methods of forming three dimensional metal articles in the art. As evidence of the level of skill in the art, Toyoda shows that structured metal sheets can be alternatively rolled or stacked to form three dimensional structures (e.g. see Figures 1 and 2; column 4, lines 46-51). Usui also shows that structured metal sheets can be alternatively rolled or stacked to form three

Art Unit: 1794

dimensional structures (e.g. see Figures 6 and 7; column 4, lines 42-47). Toyoda and Usui do not manufacture foamable preforms but they are analogous since they show the level of ordinary skill in the sheet metal manufacturing art in making three dimensional articles and also show the fairly disclosed concept in the sheet metal manufacturing art of alternatively using rolled or stacked structured metal sheets in making three dimensional articles. See *In re Wood*, 202 USPQ 171, 174; *In re Van Beckum*, 169 USPQ 47 (CCPA 1971); *In re Bozek*, 163 USPQ 545 (CCPA 1969); *In re Richman*, 165 USPQ 509 (CCPA 1970); *In re Henley*, 112 USPQ 56 (CCPA 1956); *In re Sneed*, 218 USPQ 385 (Fed. Cir. 1983). In view of Toyoda or Usui, it would have been obvious to one of ordinary skill in the art at the time the invention was made to alternatively use stacked sheets for the preform of Schneider since both rolled and stacked metal sheets are understood in the sheet metal manufacturing art to be obvious alternative embodiments in forming three dimensional metal structures. Determination of the number of sheets necessary to form a particular three dimensional preform would be within the purview of the skilled artisan. Schneider differs from some of the pending claims in that while the use of aluminum is made obvious by Schneider, Schneider may not disclose using aluminum-silicon alloys to lower the processing temperature of the preform. Schneider, however, does clearly show that one should use lower fusing temperature compositions (e.g. see column 3, line 40 - column 4, line 9). On this point, Ament is applied to show that it is well understood in the foamed metal art that AlSi is an alloy of choice for foamed metal because of its relatively low foaming temperatures (e.g. see paragraph [0022]) and therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use AlSi alloys for the foamed metal of Schneider in order to lower processing temperatures for the preform. While Ament may not disclose the particular



Art Unit: 1794

amount of Si used in the AlSi foamed metal compositions, the use of Si in aluminum compositions to lower the melting point (e.g. for brazing alloys) is well understood in the metallurgical art and it would have been obvious to one of ordinary skill in the art to optimize the amount of Si the aluminum for best foaming and bonding results of Schneider's preform. See *In re Aller, et al.*, 105 U.S.P.Q. 233 (obviousness of optimizing for best results). In any event, Wells is cited to show that aluminum braze compositions containing 3-15 wt.% Si and 0.4-10 wt.% Mg are conventional in the art and are associated with aluminum foam composites (e.g. see paragraph spanning columns 5-6). In view of Wells, it would have been obvious to one of ordinary skill in the art to use aluminum alloy containing 3-15 wt.% Si and 0.4-10 wt.% Mg for the foaming preform of Schneider because this aluminum composition is understood to have a low melting temperature as well as incorporate good wetting properties in view of its known use as a low melting point braze. Regarding the composition of the face sheets, the selection of suitable aluminum alloys would be well within the skill of one of ordinary skill in the art depending on the properties required of the foamed composite. Regarding article claims containing process operations (e.g. claim 7), when there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see *In re Brown*, 173 U.S.P.Q. 685, and *In re Fessmann*, 180 U.S.P.Q. 324. Since no degree of compression or particular structure is recited to result from the compression step of article claim 7, no particular patentable distinction is seen to be imparted by the method recitation in the claim.

Art Unit: 1794

13. Claims 1, 2 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Dietzschold (DE 1965197).

14. Dietzschold discloses production of preforms for metal foam composites wherein a foamable metal sheet is provided with a foaming agent and further placed between outer layers (e.g. see Dietzschold's claim 1, 17 and Figure 5).

15. Claims 1-9, 12-17 and 19-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietzschold (DE 1965197) in view of Baumeister (U.S. Patent 6,676,896) and Schneider (DE 19848632), and further in view of Ament (U.S. 2003/0115730) and Wells (U.S. Patent 3,788,823).

16. Dietzschold discloses production of preforms for metal foam composites wherein a foamable metal sheet is provided with a foaming agent and further placed between outer layers (e.g. see Dietzschold's claim 1, 17 and Figure 5). Dietzschold may differ from the claims in that while Dietzschold is forming laminated metal composites Dietzschold may not require roll bonding to adhere the sheets together. Baumeister, however, clearly shows that roll bonding is a method of choice in adhering layers together in multilayer foamable composites (e.g. see column 2, lines 12-36). In view of Baumeister, it would have been obvious to one of ordinary skill in the art at the time the invention was made to roll the multilayer foamable sheets of Dietzschold in order to bond them. Regarding claim 17, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the rolling operation at a temperature

Art Unit: 1794

sufficient to roll bond the layers but low enough to prevent premature foaming. Regarding claim 28, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a reduction percentage sufficient to bond the layers. Regarding claim 19, the use of coiling to store and transport a length of sheet material would have been obvious to one of ordinary skill in the art in order to facilitate the storage and transport operation. Dietzschold clearly confirms that rolling of the foamable metal is possible (e.g. see Figure 7). Dietzschold may also differ from the pending claims in that Dietzschold may not require the sheets to be aluminum sheets and the foaming agent to be a titanium hydride foaming agent. Schneider, however, discloses that compositions in the art used for preforms for in-situ metal foam formation include aluminum, zinc or aluminum-zinc alloy (e.g. see Schneider's claim 10) and foaming agents include 0.5-3 wt.% titanium hydride or zirconium hydride foaming agent (e.g. see Schneider's claim 12). In view of Schneider, the use of aluminum sheets and titanium hydride foaming agents for the foaming preform of Dietzschold would have been obvious to one of ordinary skill in the art at the time the invention was made because Schneider shows these to be conventional compositions for these uses in the art. Regarding claims 21 and 22, Dietzschold clearly shows that multiple layers can be used (e.g. Figure 5) and therefore determination of the number of sheets necessary to form a particular preform would be within the purview of the skilled artisan. Dietzschold in view of Schneider differs from some of the pending claims in that while the use of aluminum is made obvious by Schneider, Schneider may not disclose using aluminum-silicon alloys to lower the processing temperature of the preform. Schneider, however, does clearly show that one should use lower fusing temperature compositions (e.g. see column 3, line 40 - column 4, line 9). On this point, Ament is applied to show that it is well

Art Unit: 1794

understood in the foamed metal art that AlSi is an alloy of choice for foamed metal because of its relatively low foaming temperatures (e.g. see paragraph [0022]) and therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use AlSi alloys for the foamed metal of Schneider in order to lower processing temperatures for the preform.

While Ament may not disclose the particular amount of Si used in the AlSi foamed metal compositions, the use of Si in aluminum compositions to lower the melting point (e.g. for brazing alloys) is well understood in the metallurgical art and it would have been obvious to one of ordinary skill in the art to optimize the amount of Si the aluminum for best foaming and bonding results of Schneider's preform. See *In re Aller, et al.*, 105 U.S.P.Q. 233 (obviousness of optimizing for best results). In any event, Wells is cited to show that aluminum braze compositions containing 3-15 wt.% Si and 0.4-10 wt.% Mg are conventional in the art and are associated with aluminum foam composites (e.g. see paragraph spanning columns 5-6). In view of Wells, it would have been obvious to one of ordinary skill in the art to use aluminum alloy containing 3-15 wt.% Si and 0.4-10 wt.% Mg for the foaming preform of Schneider because this aluminum composition is understood to have a low melting temperature as well as incorporate good wetting properties in view of its known use as a low melting point braze. Regarding the composition of the face sheets, the selection of suitable aluminum alloys would be well within the skill of one of ordinary skill in the art depending on the properties required of the foamed composite.

***Allowable Subject Matter***

17. Claims 10-11 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record does not disclose or make obvious the inclusion of a further interposed metal sheet or foil to lower the melting point of the foamable metal.

***Conclusion***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John J. Zimmerman  
Primary Examiner  
Art Unit 1794

/John J. Zimmerman/  
Primary Examiner, Art Unit 1794

jjz  
March 27, 2008